

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. - 13. (Canceled)

14. (Previously Presented) Polymer layers comprising an anisotropic polymer layer exhibiting a tilted structure with an optical axis having a tilt angle θ relative to the plane of the layer greater than zero, obtained by polymerizing a polymerizable mesogenic material comprising at least one compound of the formula:



wherein

P is a polymerizable group,

Sp is a spacer group having 1 to 20 C atoms,

X is a group of -O-, -S-, -CO-, -COO-, -OCO-, -OCOO- or a single bond,

n is 0 or 1,

MG is a mesogenic or mesogenicity supporting group,

and

R is an alkyl radical with up to 25 C atoms optionally unsubstituted, mono- or polysubstituted by halogen or CN, optionally one or more non-adjacent CH₂ groups are replaced, independently, by -O-, -S-, -NH-, -N(CH₃)-, -CO-,

-COO-, -OCO-, -OCO-O-, -S-CO-, -CO-S- or -C≡C- where oxygen atoms are not linked directly to one another, or R is halogen, cyano or, independently,

P-(Sp-X)_n- as defined in formula I;

wherein the polymerizable mesogenic material comprises at least 95% by weight of polymerizable compounds, and
the tilt angle θ in each of said layers varies continuously in a direction normal to the layer, starting from a minimum value θ_{\min} at the side of the layer facing the other layer or, if present, the common substrate, and ranging to a maximum value θ_{\max} on the opposite side of the layer.

15. (Canceled)

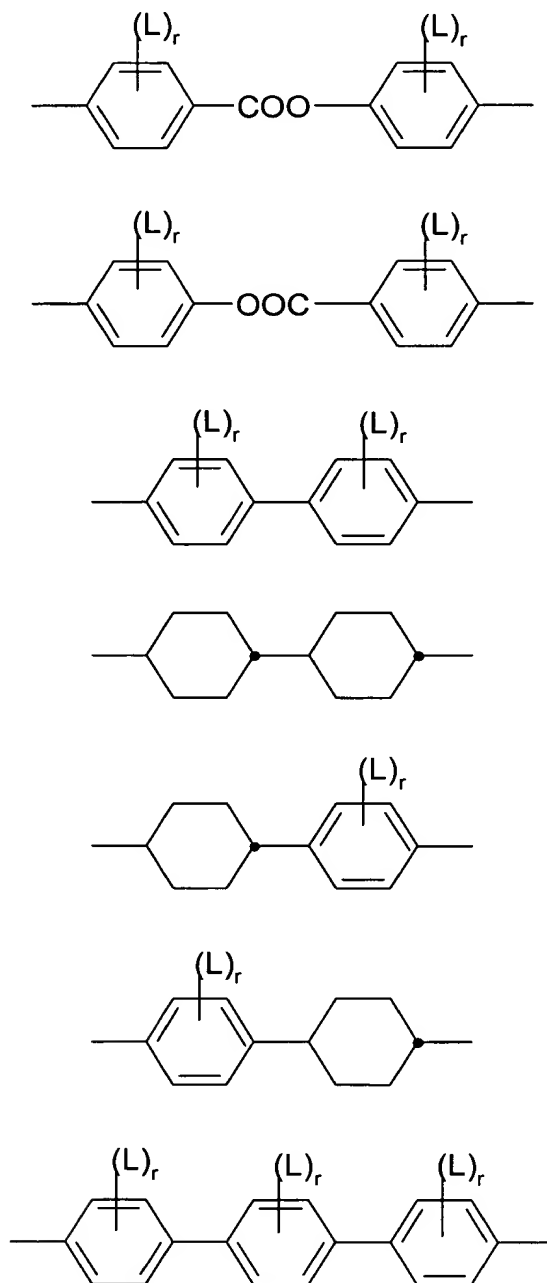
16. (Previously Presented) A polymer layer according to claim 14, wherein the minimum tilt angle θ_{\min} is from 0 to 20 degrees.

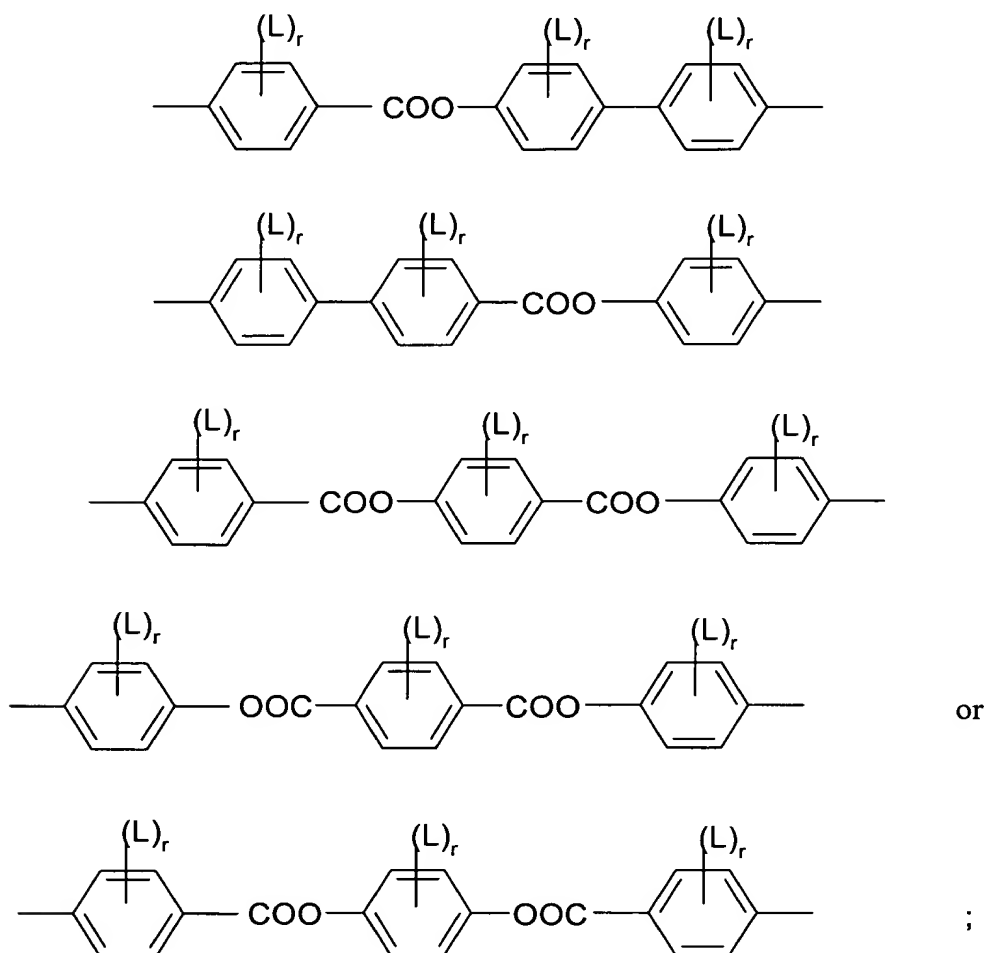
17. (Previously Presented) A polymer layer according to claim 14, wherein the maximum tilt angle θ_{\max} is from 20 to 90 degrees.

18. (Previously Presented) A polymer layer according to claim 14, wherein the tilt angle θ is substantially constant and is in the range from 5 to 80 degrees.

19. (Previously Presented) A polymer layer according to claim 14, wherein the polymerizable material comprises at least one compound of formula I having one polymerizable group and at least one compound of formula I having two polymerizable groups.

20. (Previously Presented) A polymer layer according to claim 14, wherein the polymerizable material comprises at least one compound of formula I wherein the mesogenic group MG is of the formulae:



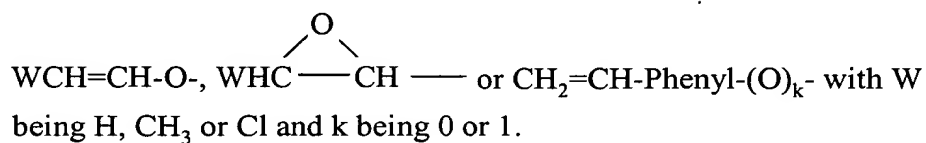


where L is: F, Cl, CN, or a fluorinated alkyl, alkoxy or alkanoyl group with 1 to 4 C atoms,

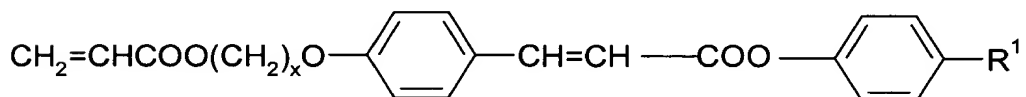
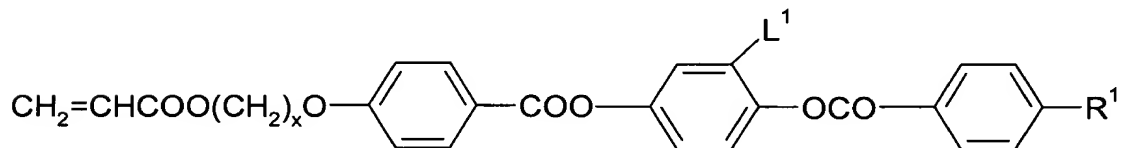
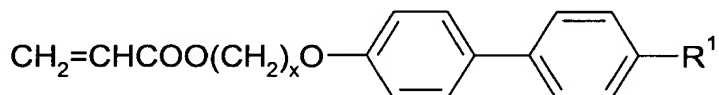
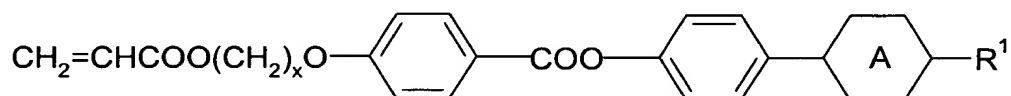
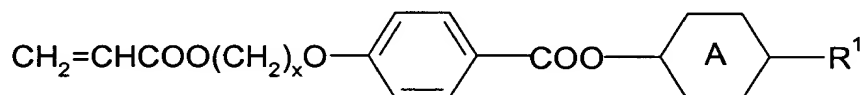
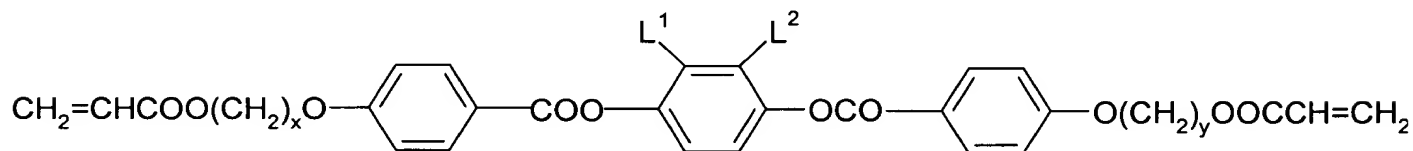
and

r is 0, 1 or 2.

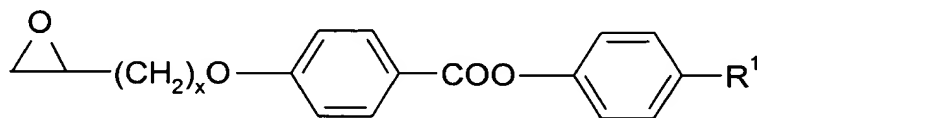
21. (Previously Presented) A polymer layer according to claim 14, wherein the polymerizable material comprises at least one compound of formula I where P is:



22. (Previously Presented) A polymer layer according to claim 14, wherein the polymerizable mesogenic material comprises at least one compound of the formulae:



or



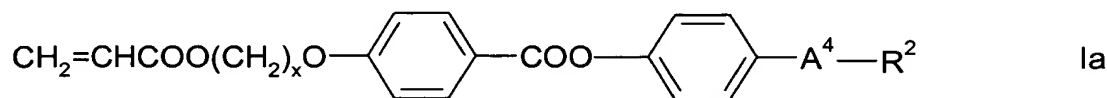
wherein x and y are, independently, 1 to 12, A is a 1,4-phenylene or 1,4-cyclohexylene group, R¹ is halogen, cyano or an optionally halogenated alkyl or alkoxy group with 1 to 12 C atoms, and L¹ and L² are, independently, H, F, Cl, CN, or a halogenated alkyl, alkoxy, or alkanoyl group with 1 to 7 C atoms.

23. (Previously Presented) A polymer layer according to claim 14, wherein the polymerizable material comprises 1 to 80% by weight of at least one dielectrically positive monoreactive mesogenic compound.

24. (Previously Presented) A polymer layer according to claim 23, wherein said dielectrically positive monoreactive mesogenic compound has a dielectric anisotropy $\Delta\epsilon > 1.5$.

25. (Previously Presented) A polymer layer according to claim 23, wherein said dielectrically positive monoreactive mesogenic compound has a polar terminal group of CN, F, Cl, OCF₃, OCF₂H, OC₂F₅, CF₃, OCN or SCN.

26. (Previously Presented) A polymer layer according to claim 14, wherein the polymerizable material comprises at least one compound of the formula:



wherein x is 1 to 12, R^2 is C_{1-12} alkyl or alkoxy, and

A^4 is 1,4-phenylene, trans-1, 4-cyclohexylene or a single bond;

at least one direactive compound of formula I; and at least one dielectrically positive monoreactive compound of formula I.

27. (Previously Presented) A polymer layer according to claim 14, wherein the polymerizable mesogenic material is a mixture of:

a1) 10 to 99% by weight of at least one mesogen according to formula I having one polymerizable functional group,

a2) 0 to 70% by weight of at least one mesogen according to formula I having two or more polymerizable functional groups, and

b) 0.01 to 5% by weight of an initiator.

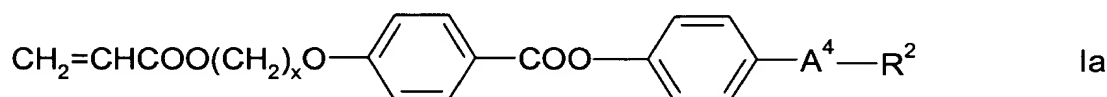
28. (Previously Presented) A polymer layer according to claim 14, wherein the polymerizable mesogenic material is a mixture of:

a1A) 10 to 65%, by weight of at least one compound of formula I having one polymerizable group, wherein R is an alkyl or alkoxy group with 1 to 12 C atoms;

a1B) 5 to 40% by weight of at least one compound of formula I having one polymerizable group, wherein R is CN, F, Cl or a halogenated alkyl or alkoxy group with 1 to 12 C atoms;

- a2) 2 to 90% by weight of at least one compound of formula I having two polymerizable groups, wherein R has one of the meanings of P-(Sp-X)_n; and
- b) 0.01 to 5 % by weight of an initiator.

29. (Previously Presented) A polymer layer according to claim 28, wherein 10-65%, by weight of at least one compound of formula I is of the formula:



wherein x is 1 to 12, R² is C₁₋₁₂ alkyl or alkoxy, and

A⁴ is 1,4-phenylene, trans-1, 4-cyclohexylene or a single bond.

30. (Previously Presented) A liquid crystal display comprising a display cell and at least one polymer layer according to claim 14.

31. (Previously Presented) A polymer layer according to claim 14, wherein the mesogenic or mesogenicity supporting group is a compound of formula:



wherein

A¹, A² and A³ are, independently, 1,4-phenylene where one or more CH groups optionally replaced by N, 1,4-cyclohexylene, optionally, one or two non-adjacent CH₂ groups are replaced by O and/or S, 1,4-cyclohexenylene or naphthalene-2, 6-diyl, optionally these groups are unsubstituted, mono- or polysubstituted with a halogen, a cyano, or a nitro group,

or an alkyl, alkoxy or alkanoyl group having 1 to 7 C atoms, wherein one or more H atoms may be substituted by F or Cl,

Z^1 and Z^2 are each, independently, -COO-, -OCO-, -CH₂CH₂-, -OCH₂-, -CH₂O-, -CH=CH-, -C≡C-, -CH=CH-COO-, -OCO-CH=CH- or a single bond and
m is 0, 1 or 2.

32. **(Previously Presented)** A polymer layer according to claim 14, wherein n=1.

33. **(Previously Presented)** A polymer layer according to claim 14, wherein the tilt angle θ is 5-80° and the polymerizable mesogenic material comprises at least 96% by weight of polymerizable compounds.

34. **(Previously Presented)** A polymer layer according to claim 14, wherein the at least 95% by weight of polymerizable compounds are of the formula I.

35. **(Previously Presented)** An anisotropic polymer layer exhibiting a tilted structure with an optical axis having a tilt angle θ relative to the plane of the layer greater than zero, obtained by polymerizing a polymerizable mesogenic material comprising at least one compound of the formula:



wherein

P is a polymerizable group,

Sp is a spacer group having 1 to 20 C atoms,

X is a group of -O-, -S-, -CO-, -COO-, -OCO-, -OCOO- or a single bond,

n is 0 or 1,

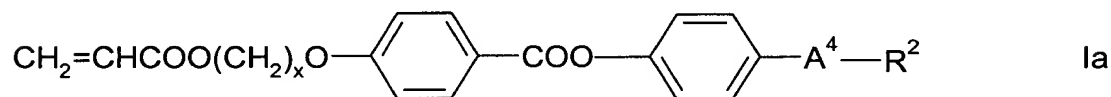
MG is a mesogenic or mesogenicity supporting group,

and

R is an alkyl radical with up to 25 C atoms optionally unsubstituted, mono- or polysubstituted by halogen or CN, optionally one or more non-adjacent CH₂ groups are replaced, independently, by -O-, -S-, -NH-, -N(CH₃)-, -CO-, -COO-, -OCO-, -OCO-O-, -S-CO-, -CO-S- or -C≡C- where oxygen atoms are not linked directly to one another, or R is halogen, cyano or, independently, P-(Sp-X)_n- as defined in formula I;

wherein the polymerizable mesogenic material comprises at least 95% by weight of polymerizable compounds and wherein the polymerizable mesogenic material is a mixture of:

a1A) 10 to 65%, by weight of at least one compound of formula I is of the formula:



wherein x is 1 to 12, R² is C₁₋₁₂ alkyl or alkoxy, and

A⁴ is 1,4-phenylene, trans-1, 4-cyclohexylene or a single bond;

a1B) 5 to 40% by weight of at least one compound of formula I having one polymerizable group, wherein R is CN, F, Cl or a halogenated alkyl or alkoxy group with 1 to 12 C atoms;

- a2) 2 to 90% by weight of at least one compound of formula I having two polymerizable groups, wherein R has one of the meanings of P-(Sp-X)_n; and
- b) 0.01 to 5 % by weight of an initiator.

36. (New) An anisotropic polymer layer exhibiting a tilted structure with an optical axis having a tilt angle θ relative to the plane of the layer greater than zero, obtained by polymerizing a polymerizable mesogenic material comprising at least one compound of the formula:



wherein

P is a polymerizable group,

Sp is a spacer group having 1 to 20 C atoms,

X is a group of -O-, -S-, -CO-, -COO-, -OCO-, -OCOO- or a single bond,

n is 0 or 1,

MG is a mesogenic or mesogenicity supporting group, and

R is an alkyl radical with up to 25 C atoms optionally unsubstituted, mono- or polysubstituted by halogen or CN, optionally one or more non-adjacent CH₂ groups are replaced, independently, by -O-, -S-, -NH-, -N(CH₃)-, -CO-, -COO-, -OCO-, -OCO-O-, -S-CO-, -CO-S- or -C≡C- where oxygen atoms are not linked directly to one another, or R is halogen, cyano or, independently, P-(Sp-X)_n- as defined in formula I;

wherein the polymerizable mesogenic material comprises at least 95% by weight of polymerizable compounds, and

the tilt angle θ in said layer varies continuously in a direction normal to the layer, starting from a minimum value θ_{\min} at one side of the layer and ranging to a maximum value θ_{\max} on the opposite side of the layer.